

Investigating the Impact of Feedback Instruction: Partnering Preservice Teachers with Middle School Students to Provide Digital, Scaffolded Feedback

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Abstract: This article investigates the impact of scaffolded feedback instruction provided through an undergraduate methods course. Because of a desire for preservice teachers to have online teaching experience and due to low performance scores in assessment on the edTPA, a project was created which partnered preservice teachers with middle-grades students. Preservice teachers provided digital feedback, as students worked on a research project, while receiving scaffolded instruction about feedback in their methods course. Our study utilizes a mixed-methods intrinsic case study design. Participants included 82 rural middle school students and 16 preservice teachers from a large public university in the Midwest. As a result of participating in the methods course, preservice teachers' abilities, confidence, and beliefs about giving feedback improved. Middle-grades students reported feeling positive about receiving feedback and felt it was helpful. Implications for instructors, preservice teacher training, middle-grades student learning, and issues related to studying teacher education are discussed.

Keywords: scaffolded feedback, preservice teachers, edTPA

Preparing new teachers for success in the classroom is more important than ever in the United States. As states and teacher preparation programs strive to prepare students to become effective teachers, many are looking for new ways to develop and evaluate beginning teaching effectiveness. Some states are leaving traditional paper-pencil licensure assessment practices behind and/or supplementing them with authentic, performance-based measures to help with assessment preservice teaching quality. Performance assessments that include evidence from one's actual teaching can potentially provide a more direct evaluation of teaching ability (Pechone & Chung, 2006), and more states are moving toward performance assessments.

The National Board for Professional Teaching Standards (NBPTS) started evaluating the performance of teachers via a set of performance standards at the national level in 1994. Their assessment process is for current teachers, and it is grounded in a teacher's daily work with students. In the past 10 years, high stakes performance assessments—similar to the design of the NBPTS's—have arrived on the scene for preservice teachers. For some teacher education

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institutions, performance assessments have been fundamental to their programs for many years. The shift now taking place nationwide, however, is to move away from institution-specific performance assessments and move toward a standardized assessment that holds common expectations for preservice teachers across an institution, a state, or even the nation (Sato, 2014).

Members of the teacher education community in the United States started making an effort to define the performance expectations for preservice teachers exiting teacher education programs by developing a performance assessment that can be commonly administered across institutions and reliably scored by experts in teaching (Sato, 2014). The American Association of Colleges of Teacher Education (AACTE), a leading professional organization of teacher education institutions in the United States, supports the development of a performance assessment that sets performance expectations for beginning teachers across the nation.

The Educative Teacher Performance Assessment (edTPA) is the first nationally available, research- and standards-based support and assessment program that serves as a common and external measure of candidate performance and teacher quality. edTPA provides access to a multiple-measure assessment system aligned to contemporary state and national standards (SCALE, 2013). It was field-tested nationally with more than 12,000 teacher candidates from 22 states during the 2011-12 and 2012-13 academic years. The field test data showed that edTPA is a rigorous performance assessment of teacher quality that produces valid and reliable results (American Association of Colleges for Teacher Education, 2014). Information from the field tests was used to fine-tune assessments, and edTPA was declared fully operational in September 2013 and can now be used for teacher licensure in some states, both as part of state and national program accreditation and to guide program improvement. Evaluation Systems, a unit of Pearson, provides the technical infrastructure to distribute, collect, and manage scoring of the edTPA.

As of 2014, seven states (Georgia, Hawaii, Minnesota, New York, Tennessee, Washington, and Wisconsin) had adopted policies for using edTPA. Other states, including Illinois and Ohio, are considering edTPA policies at the state level. Campuses in 19 additional states and the District of Columbia continue to pilot the assessments as these states are considering edTPA as a preparation requirement for new teachers, as a formal requirement for licensure, or as part of institutional accreditations (SCALE, 2014). All in all, 34 states currently either have edTPA policies or higher education institutions that are participating in edTPA.

The edTPA assessment process typically occurs at the end of student teaching when teacher candidates document and demonstrate their ability to teach their subject matter to students during their teaching experience. Preservice teachers electronically submit their teaching materials that showcase their ability to complete three tasks: planning, teaching, and assessing. Preservice teachers include lesson plans, instructional materials, student work samples, assessments, and videos of their teaching, which are focused around three to five continuous days of classroom instruction. Candidates also upload written commentary about these three areas of their teaching. Trained educators who have experience supporting beginning teachers then score each edTPA assessment. Half of the current scorers are recruited from higher education, and half are recruited from PK-12 educators.

Ohio was one of the first states to pilot this process, and our university started field-testing the assessment with our student teachers in 2012. Education faculty from XXXXX University, where this study was conducted, soon realized our students were more successful with certain tasks of the edTPA, whereas other tasks were more challenging. Specifically, our teacher candidates scored lowest on tasks related to “Assessing Student Learning.” The

assessment tasks in edTPA—collectively called Task 3—consist of the following five areas: analysis of student learning; providing feedback to guide learning; student use of feedback; analyzing students' language use and English language learning; and using assessments to inform instruction.

Purpose and Research Questions

The purpose of this study is to investigate the impact of deliberate, scaffolded feedback instruction provided through an undergraduate course on preservice teachers' perceptions and application of giving quality feedback to middle school students. Further, we are studying the impact of trained preservice teachers' feedback on middle school students' perceptions of feedback and performance on a mastery research project. Four research questions guided this study:

- 1) Did language arts preservice teachers who participated in this course score significantly better in terms of their edTPA Task 3 feedback rubric scores than those teachers who did not participate in the course?
- 2) Did preservice teachers' ability to give high quality feedback significantly change over time as a result of instructional intervention? If yes, how and why?
- 3) Did preservice teachers' beliefs about instructional feedback given by teachers and confidence in giving their own high-quality feedback significantly change as a result of the intervention? If yes, how and why?
- 4) Did grades 7-9 students' perceptions of feedback from their teacher and their preservice teacher/partner significantly differ? If yes, how and why?

Feedback Literature

Quality Feedback

Learning is viewed as a social practice where knowledge and comprehension are created through interactions between teachers and students. Assessment, and the feedback associated with it, provides an important component of that interaction. According to Fisher and Fry (2013), the decisions made regarding instruction must be based on the assessment data collected throughout the learning cycle. The purpose of assessment is to monitor and evaluate student learning prior to, during, and after instruction.

Whereas summative assessment focuses on what students have learned after instruction, formative assessment is conducted prior to and during instruction to help progress student learning. Formative assessment is a social, collaborative activity with emphasis on the teacher and students working in partnership to enhance learning (Hawe, Dixon, & Watson, 2008). Further, formative assessment is concerned with the quality of student responses and how they can be used to improve student understanding. Feedback is key in formative assessment. Typically, feedback is when teachers share how successfully a learning target or objective has been or is being completed (Sadler, 1989). While gathering and analyzing information from formative assessments, it is imperative to simultaneously communicate trials and triumphs through an open network of feedback between teacher and student. The social collaborative activity that drives student performance and increases effective interaction between teacher and student is that of quality feedback. Hattie and Timperley (2007) explain feedback is

conceptualized as information provided by an agent regarding aspects of one's performance or understanding. The teacher, who is the agent providing feedback, must not only be evaluative when providing information on performance and understanding but must also provide paths to redirect thinking, encourage ongoing knowledge acquisition, and prompt students to become evaluative and critical of their own work in hopes that they will correct or improve themselves.

Quality feedback clearly communicates learning goals, the appropriate steps to take to reach these goals, and how a student can go about demonstrating what has been learned. According to Fisher and Frey (2013), students need to know the expectations and how to show their expertise so that, therefore, their learning is enhanced. To do this, teachers should give clear directions and reasons for learning, which will familiarize students and make learning purposeful. Feedback should further trigger thinking.

Feedback is essential in all learning situations. It is used for an evaluation of students' achievements, to improve students' abilities and understanding, and to raise students' motivation and confidence (Hyland, 2000). In addition, formative feedback contributes to students' learning and teacher planning adjustments. Due to the recent arrival of edTPA, the literature has lacked data from assessors at Pearson; therefore, this study was conducted with the goal of providing such data to the feedback literature field.

Characteristics of Quality Feedback

All feedback is not created equal, as per Parr and Timperley (2010), "the nature of feedback can also encourage surface versus deep learning" (p. 69). Researchers emphasize that high-quality feedback is a powerful influence on student achievement (Hattie & Timperley, 2007), and we know that students want and value quality feedback (Hyland, 2000) when they have an opportunity to use the feedback to improve their learning. In order to be considered high quality, feedback should have a range of qualities including timeliness, motivational, personalized, manageable, and directly related to assessment criteria.

To start, feedback must be timely or it loses its effectiveness (Fisher & Frey, 2013; Hatziapostolou & Paraskakis, 2010). Without timely feedback, students may not be able to recall the processes used when completing the initial learning task, thus delaying advancements in the thinking and learning processes. In addition, immediate feedback allows students to build upon and apply positive strides when strengths are exemplified in the feedback. Immediate feedback also allows students to correct misconceptions or mistakes before further ingraining them into practice.

Positive or negative impacts on students' motivation and self-esteem are related to the feedback given; therefore, formative feedback should be empowering and constructive. Hattie and Timperley (2007) suggest, to keep feedback motivating, it should be robust and used judiciously. Differentiation is also important when it comes to feedback, as an essential quality of the most effective feedback is that it is personal and individualized. Feedback needs to be personalized and tailored to individual students' strengths and weaknesses (Hatziapostolou & Paraskakis, 2010).

When students receive feedback from a teacher, it should not be overwhelming. It should be detailed enough that students understand their strengths and weaknesses (Hatziapostolou & Paraskakis, 2010). Feedback should be manageable and allow students to interpret and benefit easily from the feedback they need to focus on most. Once the student interprets the feedback given, it should be actionable; that is, the learner should clearly understand what should be done

next and be able to work toward a new goal with independence. Additionally, feedback should be specific so the learner is equipped with a necessary level of detail about one's next actions and can experience future success when applying the direction of the given feedback.

Directly relating feedback to assessment criteria establishes clear and unambiguous standards of achievement. Because assessment criteria constitute what is necessary for students to achieve, formative feedback should explain the extent to which a student achieves each separate assessment criterion, identifies knowledge gaps, and addresses specific errors and preconceptions. According to research by Hattie and Timperley (2007), feedback has four levels and the level where feedback is directed influences its effectiveness. Table 1 summarizes and describes their findings.

Table 1.
Four Levels of Feedback

Types of feedback	Effective because	Teacher says
The Task (information about errors)	Reminds the student about his/her cognitive and metacognitive thinking. Corrects flawed interpretations.	“Looking over your work, it looks like you don’t understand the writing style required for argumentative writing. Let’s review what that writing looks like.”
The Process (alternative strategies)	Draws attention to how student approached the task and other ways to process it. Encourages students to check their work, recognize errors and self-correct.	“I see you’re underlining the parts of the story that are important for telling us about the character. That’s keeping your ideas organized.”
Self-Regulation (how students monitoring their learning)	Assists the student in self-assessing and allows student to pinpoint what worked and did not work in regards to behaviors in the learning environment. Teaches self-monitoring and directing.	“You were frustrated earlier when your group wasn’t listening to your ideas, but you stayed cool and tried again. Did you notice how your peers listened when you gave them another chance?”
Do not give feedback about	Not Effective because	Teacher says
The Individual (self-as a person)	It doesn’t provide the student with any information about what to do next. It lacks specificity, and doesn’t give clear directives and/or reinforcements about the objectives. It’s too vague.	“Good, girl!” “Great try!”

Importance of Giving Quality Feedback

Throughout the history and philosophy of teaching, assessment has long been viewed as the catalyst for improvement in teaching and learning. If one wants to change student learning then one changes the methods of assessment (Beaumont, Doherty, & Shannon, 2011). Today the provision of quality feedback is widely perceived as both a key benchmark of effective teaching and a vital requirement in meeting students' expectations. Moreover, effective feedback not only helps learners evaluate where they are, but it also provides them with where to proceed next (Hattie & Timperley, 2007).

Quality feedback also impacts students' willingness to challenge themselves to create and achieve goals that surpass expectations. High-quality feedback encourages the learners to assume more responsibility for their own learning—because they can (Fisher & Frey, 2013). Students' perception to feedback is important. Students with positive mindset can perceive feedback as opportunity for future development whereas students with a negative attitude may be discouraged (Hatzia apostolou & Parakakis, 2010). As a result, quality formative feedback should also be effectively communicated to students in order to aid motivation and ensure that students positively engage with the content of the feedback (Zhu, 2012). In addition, quality feedback given as part of formative assessment enables learners to consolidate their strengths and identify their weaknesses. It guides them through the necessary actions in order to achieve the learning outcomes (Sadler, 1989). Assessment information must be gathered throughout the learning cycle. According to Fisher and Frey (2013), "Teachers can use projects to check for understanding. This should not be done at the end, when the project is completed, but rather as students work on these types of activities" (p. 139).

Training Preservice Teachers to Give Quality Feedback through a Scaffolded Approach

Feedback comes in various forms that should be explored and practiced in order to refine the skill. Fisher and Frey (2013) remind teachers that checking for understanding should be "an ongoing process of assessment to determine to what extent students understand and to find out what gaps remain" (p. 136). Checking for understanding may frequently be done formally or informally through questioning. Fisher and Frey (2013) explain that quality checking means teachers need to ask questions requiring complex and critical thinking. Another method to questioning is to invite students to create their own questions. Noting that writing equals thinking, encouraging students to develop their own questions that go beyond rote memorization and understanding, is a skill that will help them think deeply and beyond the information that is provided to them.

Feedback is a vital piece of teaching and learning. It allows teachers and students know how they are doing and it can be powerful if done well. High-quality feedback lets students understand where they are in their learning, and it helps them know what to do next. And whereas feedback is effective for alerting a learner to errors, it is not effective when the student does not have the knowledge or skills to complete the task (Fisher & Frey, 2013).

Utilizing a scaffolded approach, in which preservice teachers learn through modeling followed by application, allows giving good feedback to be developed and reinforced.

Context of Our Study

All preservice teachers at this university seeking licensure to teach language arts at the middle childhood level are required to take a course on the teaching of reading and language arts to students in fourth through ninth grade. The main focus of this methods course includes curriculum, materials, methodologies, assessment tools, and interventions. A required field experience places each preservice teacher in a teacher's classroom in the fourth through ninth grades where they spend at least one full day each week for 10 weeks, as well as five full weeks at the end of the term.

The instructor of this course believes it is also important for preservice teachers to have "real world" experience teaching online. Therefore, in addition to the required, traditional face-to-face field placement, pre-service teachers taking this course also have an additional online field placement where they are partnered with language arts students in the seventh through ninth grades.

Additionally, because "assessment" was identified as our university's lowest scoring area of edTPA, the instructor created an online project that partnered the preservice teachers with middle grades students from a K-12 school located 50 miles away. This online scenario allowed the preservice teachers and middle grades students to interact closely as the preservice teachers provided feedback to guide the learning of their assigned middle grades students, who were working on a research project for their classroom teacher. According to Hatzia apostolou and Parakakis (2010), formative feedback can effectively be shared with students in both traditional and electronic ways (Zhu, 2012). By practicing delivering feedback using both digital and traditional methods, teachers will be able to choose when and how to give students optimal feedback.

In order to have the preservice teachers provide effective feedback and encourage their middle school students to use that feedback, a series of lessons were delivered in the methods course for the preservice teachers. Prior to most of the class meetings, the preservice teachers were given a sample of a middle school student's work. With each sample, they were to pretend they were the middle school student's teacher and provide feedback to that student. In class, preservice teachers discussed the feedback they gave, and they viewed and heard how the course instructor would give feedback in each particular case. After effective instructor modeling and multiple opportunities to practice in a simulated environment were completed, preservice teachers then applied their skills with middle school students through an online field experience.

A scaffolded approach must be used liberally during training in the college-level curriculum to prepare preservice teachers to provide quality feedback to their own students. In our study, scaffolded instruction was guided with a step-by-step approach to assist preservice teachers in giving high-quality feedback. Our scaffolded approach follows this all-inclusive process: instructor models, then preservice teachers apply and practice in a simulated context, and finally preservice teachers apply to a real-world situation. Throughout instruction, quality feedback should be modeled and reinforced.

Methods

Our study utilizes a pre-post without control group quasi-experimental intrinsic case study design. Quasi-experimental designs are used to study outcome comparison of an intervention without using randomization of participants into control and intervention groups. Specifically, a pre-post without control group quasi-experimental design investigates the outcomes of interest within the same participants both before and after an intervention to see if the intervention impacted the outcomes of interest (Cook & Campbell, 1979). In our study, the language arts methods course is the intervention. Participants studied at pre and post are preservice teachers and middle grades students. Preservice teacher outcomes of interest being compared before and after intervention are their ability to provide quality feedback, beliefs about instructional feedback given by teachers, and self-confidence in providing high-quality feedback. Whereas edTPA Task 3 outcomes are of interest, they are not able to be studied with a pre-post design among the same sample since participants typically only complete the edTPA once. As such, we are comparing our language arts preservice teachers who participated in the intervention class to those from the language arts cohort the year before. The middle grades student outcome of interest is perceptions of teacher feedback and is assessed pre-post project interaction.

Case study research, whereas often viewed as qualitative in nature (Creswell, 2005), may implement quantitative methods alone or mixed-methods to analyze data (Yin, 1989). This case study implements a collective intrinsic design that utilizes both quantitative and qualitative methods. Preservice teachers in the language arts methods course and middle grades students interacting with the preservice teachers are the unit of analysis. And the focus of this research is to develop a deeper understanding and assess the impact this specific case (the language arts methods course feedback intervention) itself (Baxter & Jack, 2008).

Participants

Participants in this study included 16 preservice teachers and 82 middle school students. The preservice teachers were enrolled in a language arts methods course in a teacher education program at a large university located in the midwestern region of the country. The study took place over the course of a semester in the preservice teachers' senior year. All preservice teachers identified themselves as White. With regard to gender, 12 (75%) of the participants were female and four (25%) were male.

The 82 middle school students consisted of 30 ninth graders, 26 eighth graders and 26 seventh graders. Forty-three (52%) were female and 39 (48%) were male. School officials identified all as White and all spoke English as their first language. The middle school students attended a small, rural K-12 school district located in the Midwest with a 25.3% rate of free and reduced lunches. They were in six separate language arts classes: two sections of seventh grade, two sections of eighth grade, and two sections of ninth grade. Seven students were on IEPs. The classroom teacher was in her second year of teaching.

Instrumentation

As is common in case study research, multiple data sources were drawn upon for analysis and to inform results of this study. Two surveys—one for preservice teachers and one for middle grades students, multiple preservice teacher “giving feedback” practice assessments, preservice

teachers' edTPA Task 3 scores and preservice teacher end-of-project reflection essay assignment.

Preservice teacher edTPA Task 3 scores. The edTPA consists of three tasks and a total of 15 rubrics to evaluate teacher candidate performance in the classroom. Task 3 focuses on assessment and implements five grading rubrics to score students in different categories related to classroom assessment. Two edTPA rubrics from Task 3 are used specifically to score feedback: Rubric 12—"Providing Feedback to Guide Learning" and Rubric 13—"Student Use of Feedback". Scores could range from 1 to 5 on each rubric, with scores of 3 or better indicating a student has passed the component. Results from these two rubrics are used in our study because they are directly aligned with our research.

Preservice teacher survey. The preservice teacher survey was comprised of two quantitative rating sections: 1) beliefs about other teachers' feedback practices and 2) confidence in personal feedback skills. Each section was made up of nine items focusing on components found in the literature that suggest quality feedback has been given to students. Items from each section of the survey were parallel in content but focused either on what preservice teachers believe other practicing teachers actually do when giving feedback or the confidence level these preservice teachers possess for completing the same tasks. For example, in the beliefs about other teachers' feedback practices section, preservice teachers were asked, "In general, teachers I have encountered give students feedback that could move student learning forward." These items were rated on a 4-point, Strongly Disagree to Strongly Agree scale. In the "confidence in personal feedback skills" section of the survey, they were then asked to "Indicate your confidence level for giving students feedback that could move student learning forward." These items were rated on a 4-point, Extremely Insecure to Extremely Confident scale.

Ten open-ended follow-up questions about feedback were asked after the two quantitative rating sections. These questions focused on preservice teachers' perceptions of the purpose of giving feedback, comfort level in giving feedback, and use of feedback. Appendix A provides all items rated quantitatively for both sections of this survey as well as the qualitative follow-up questions. This survey was given to preservice teachers on the first day of class and after the project was completed through an online survey program called Qualtrics.

Preservice teacher feedback assessments. As part of the language arts methods course, preservice teachers were assigned five feedback homework assignments that were used to assess their ability to provide quality feedback to middle grade students. For a baseline score, the first assignment was given prior to any instruction on giving quality feedback. The four assignments that followed were given throughout the course following direct instruction lessons focusing on important feedback skills and principles. More information on these assignments has been provided previously in the "Context of Our Study" section.

Preservice teacher reflection essay assignment. This assignment asked preservice teachers to reflect in detail on the experience they had in providing feedback to middle grade students through the project they had just completed. Preservice teachers were required to submit all of the communications with their middle grades student partner and also write a reflection essay focusing on the following four parts: 1) Identify the greatest barriers to completing this work and explain why; 2) Tell what additional supports you could have used to reduce the barriers; 3) Describe what worked well and why; 4) Explain what you should have done differently and why you feel that way.

Middle grades student survey. Middle grades students were asked to complete an online survey at two time points: before they started working with their university partner preservice

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teacher and after their projects were completed. This survey was made up of two sections: 1) rating scale questions about student perceptions of feedback; and 2) open-ended questions about feedback perceptions. The rating scale section consisted of 10 items on a 4-point, Strongly Disagree to Strongly Agree scale. Items on the pre-survey were identical to items on the post-survey with the exception of instructor focus. Specifically, pre-survey items asked middle grade students about their perceptions of feedback practices pertaining to their current teachers, and post-survey items were about feedback interactions with their preservice teacher partner. On the pre-survey, for example, one item was “I read the feedback my teacher gives to me.” And on the post-survey this same item asked students to agree or disagree with the statement, “I read the feedback my Student Partner gives to me.”

Two open-ended follow-up questions about feedback were asked after the rating scale section. These questions focused on student feelings about receiving feedback on their work and how teachers could make their feedback to students more meaningful. Appendix B provides all items rated quantitatively for this survey as well as the qualitative follow-up questions.

Analysis

Quantitative Analysis

All quantitative analyses were completed using SPSS (V17). Appropriate repeated measures ANOVAs, paired-samples *t*-tests, or independent-samples *t*-tests were run depending on the number of time data points collected and/or groups compared. Descriptive statistics are provided for all analyses. Regardless of whether statistical significance was found, effect size (partial eta squared) was examined. In addition, relating group means to their appropriate scales of measurement or benchmark scores was done to assess meaningfulness of findings.

Qualitative Analysis

Thematic analysis was used to analyze qualitative data sources. Open-ended survey items were read and sorted based on the research question they informed best, and at times items were used to inform multiple research questions. After this initial sorting, emergent coding was used to identify themes that arose from participant responses. All participant responses are represented in the qualitative results regardless of how many or few reported on the theme. As such, descriptive statistics are reported (frequency of occurrence) to indicate weight of thematic importance to the sample.

Results

Results are shared by research topic in this section. When possible and appropriate, quantitative and qualitative findings are both provided to give a more holistic picture of the results and illustrate how multiple sources of data either compliment or refute each other. At other times, only quantitative results are shared because no supplementary qualitative results are available.

Preservice Teacher Feedback Ability Findings

edTPA results comparison. Independent-samples *t*-test results showed that preservice teachers who completed the intervention course performed significantly better ($M=3.86$, $SD=0.53$) in their edTPA Rubric 12 (Providing Feedback to Guide Learning) scores compared to students who did not complete the class ($M=3.47$, $SD=0.76$); $t(1) = 1.68$, $p<.05$. The effect size for participation in course is considered small-medium ($\eta_p^2=.053$) with 5.3% of the variance in preservice teachers' edTPA Rubric 12 scores accounted for by course participation. Whereas the students who completed the course scored significantly better, both groups on average were passing this section of the assessment (scores of 3 or greater).

Independent-samples *t*-test results indicated that preservice teachers who completed the intervention course performed significantly better ($M=3.11$, $SD=0.92$) in their edTPA Rubric 13 (Student Use of Feedback) scores compared to students who did not complete the class ($M=2.53$, $SD=0.79$); $t(1) = 2.25$, $p<.01$. The effect size for participation in course is considered medium ($\eta_p^2=.092$) with 9.2% of the variance in preservice teachers' edTPA Rubric 13 scores accounted for by course participation. This difference holds high practical importance because those completing the course are averaging a passing score (score of 3 or greater) and those not completing the course are averaging a failing score (score less than 3).

Feedback ability over time. Repeated measures of ANOVA results showed that preservice teachers' ability to give high quality feedback on practice middle grades student work homework assignments significantly improved over time from before instruction to after; $F(4) = 9.18$, $p=.000$. The effect size for time is considered large ($\eta_p^2=.380$) with 38% of the variance in preservice teachers' feedback ability scores accounted for by time of assignment. Post-hoc analysis revealed the changes over time were statistically different between the first three assignment scores (significantly lower) and the final assignment score (significantly higher). Table 2 provides descriptive statistics for these analyses and Figure 1 depicts the post-hoc significant differences over time graphically.

Table 2.
Means and Standard Deviations for PreService Teacher Feedback Assignment Scores over Time

Time	Mean	Standard Deviation
Pre	2.06	.68
Post 1	2.00	.75
Post 2	2.16	.81
Post 3	2.59	.58
Post 4	3.00	.00

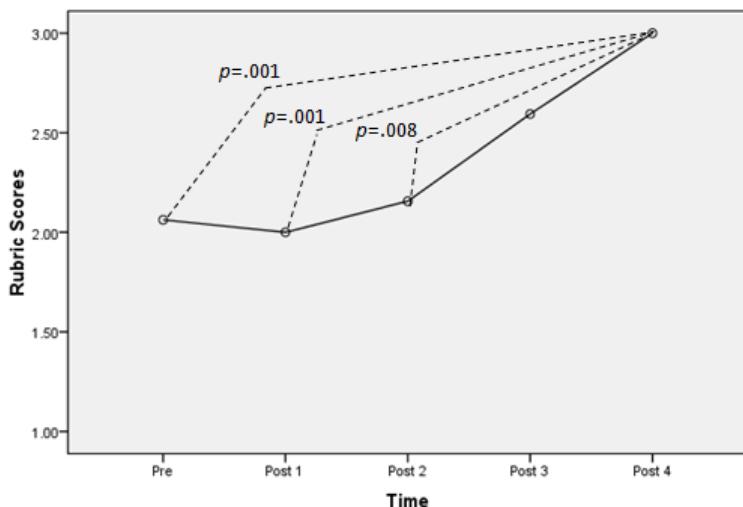


Figure 1. Graphical depiction of preservice teacher feedback assignment scores over time.
Significant differences were found between the Pre-instruction administration and Post 4, Post 1 and Post 4, as well as Post 2 and Post 4.

Based on qualitative results, regarding preservice teachers' feedback ability, a majority of the preservice teachers in the project expressed growth in ability to provide quality feedback. Preservice teachers appeared to experience growth in three areas in regards to feedback: authenticity, appropriateness, and critical refining skills.

Authenticity. Preservice teachers seemed to credit working with "real students" as the largest factor for their growth ($n = 10$). One preservice teacher commented,

In all of my other classes where we have practiced feedback we have given feedback to old test essays or math problems. This time, not only were they actual students, but their work was being done currently and they were actually working on the project that we were giving feedback on.

Another noted,

It seems like we have always heard about how many different levels our students would be at in a single class, but I never realized how true that was until I began reading over my small group's writing. Each student seemed to be at a different level of understanding the content and putting their thoughts into their writing, which was very eye opening when it came to providing feedback.

Appropriateness. As for appropriateness, preservice teachers indicated growth or learning from two areas: the amount of feedback given (with a focus on correctly gauging the amount needed for the assignment and student in question, $n = 5$), and "kinds" of feedback given using technology ($n = 12$). It seemed as if preservice teachers learned to gauge how much feedback to provide as the project continued. One preservice teacher stated, "Reflecting now, I think that I may have given my students too many comments at the beginning because my feedback was longer than their actual post." It seems evident that preservice teachers grew to learn how much and what kind of feedback to provide to ensure student success.

Critical Refining Skills. Lastly, preservice teachers appeared to develop their abilities to refine student work critically. There were six references to becoming more direct in student feedback, five references to asking more critical questions, and seven references to providing more constructive feedback. Preservice teachers ($n = 5$) noted that direct, specific feedback (using technology such as the Review feature in Microsoft Word) helped students improve the most. One preservice teacher noted the success of this idea:

I then started using the Review option in the word documents and was able to point out exactly what parts of their writing I was talking about with my feedback.

I found that the students seemed to be making the changes that I suggested and were also better able to understand what parts of their writing I had been talking about when I began using this option.

This idea of direct, specific feedback helped her students make more specific improvements to their writing. Critical thinking questions from preservice teachers also helped guide the students in writing:

I always made sure to offer challenging questions that required critical thinking in each of my responses. Each week, my students would then answer these critical thinking questions in a word document and then submit their other work. From this approach, I was able to see each student's understanding grow as the weeks went on.

One preservice teacher noted,

With my students being complete strangers, I tried to craft [my responses] in a very complimentary fashion while offering three or four ideas to consider. ... If I could do it over again, I would use the same approach, but offer more constructive feedback. I feel that I may have been too complimentary without directly addressing some other topics that could have been pointed out.

Preservice Teacher Beliefs about Feedback

Beliefs about other teachers' feedback practices over time. On average, preservice teachers' beliefs about general feedback practices of other teachers were not significantly different from pre- ($M=27.08$, $SD=3.55$) to post- ($M=26.85$, $SD=4.00$) survey administration as shown from paired-samples t -test results; t (12) = .137, $p = .894$, two-tailed. Overall, preservice teachers felt positively about most survey items. However, they expressed concern about teachers' feedback practices in terms of teachers' including both positive and corrective feedback, providing students opportunities to contribute to the feedback, allowing students to use/reflect on feedback to improve learning, giving feedback throughout the learning rather than just at the end of instruction, and teachers' ability to use assessment results and student feedback to drive instruction. See Table 3 for full descriptive results.

Table 3.

Complete Descriptive Results for Pre-Post Preservice Teacher Feedback Beliefs about Other Teachers' Practices

Survey Item	SD Pre <i>Post</i>	D Pre <i>Post</i>	A Pre <i>Post</i>	SA Pre <i>Post</i>
have the skills needed to provide effective feedback to their students.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	0% (<i>n</i> =0) 0% (<i>n</i>=0)	81.3% (<i>n</i> =13) 84.6% (<i>n</i>=11)	18.8% (<i>n</i> =3) 15.4% (<i>n</i>=2)
communicate feedback in a student-friendly way.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	0% (<i>n</i> =0) 0% (<i>n</i>=0)	62.5% (<i>n</i> =10) 61.5% (<i>n</i>=8)	37.5% (<i>n</i> =6) 38.5% (<i>n</i>=5)
provide quality feedback to their students.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	0% (<i>n</i> =0) 0% (<i>n</i>=0)	75.0% (<i>n</i> =12) 76.9% (<i>n</i>=10)	25.0% (<i>n</i> =4) 23.1% (<i>n</i>=3)
include both positive and corrective feedback.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	25.0% (<i>n</i> =4) 30.8% (<i>n</i>=4)	56.3% (<i>n</i> =9) 53.8% (<i>n</i>=7)	18.8% (<i>n</i> =3) 15.4% (<i>n</i>=2)
give students feedback that could move student learning forward.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	6.3% (<i>n</i> =1) 7.7% (<i>n</i>=1)	68.8% (<i>n</i> =11) 69.2% (<i>n</i>=9)	25.0% (<i>n</i> =4) 23.1% (<i>n</i>=3)
provide students opportunities to contribute to the feedback.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	43.8% (<i>n</i> =7) 38.5% (<i>n</i>=5)	31.3% (<i>n</i> =5) 38.5% (<i>n</i>=5)	25.0% (<i>n</i> =4) 23.1% (<i>n</i>=3)
allow students to use/reflect on feedback to improve their learning.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	31.3% (<i>n</i> =5) 30.8% (<i>n</i>=4)	37.5% (<i>n</i> =6) 38.5% (<i>n</i>=5)	31.3% (<i>n</i> =5) 30.8% (<i>n</i>=4)
give feedback throughout the learning rather than just at the end of instruction.	18.8% (<i>n</i> =3) 23.1% (<i>n</i>=3)	31.3% (<i>n</i> =5) 23.1% (<i>n</i>=3)	37.5% (<i>n</i> =6) 46.2% (<i>n</i>=6)	12.5% (<i>n</i> =2) 7.7% (<i>n</i>=1)
use assessment results and student feedback to drive their instruction.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	31.3% (<i>n</i> =5) 30.8% (<i>n</i>=4)	50.0% (<i>n</i> =8) 53.8% (<i>n</i>=7)	18.8% (<i>n</i> =3) 15.4% (<i>n</i>=2)

Confidence in personal feedback skills over time. On average, preservice teachers' confidence in their own feedback skills were not significantly different from pre- ($M=28.23$, $SD=2.62$) to post- ($M=26.46$, $SD=4.35$) survey administration as shown through the paired-samples *t*-test results; t (12) = 1.59, p = .137, two-tailed. Overall, preservice teachers felt confident about most survey items. However, some expressed concern about confidence in their own feedback practices in terms of providing quality feedback to students, including both positive and corrective feedback, providing students opportunities to contribute to feedback, allowing students to use/reflect on feedback to improve their learning, and giving feedback throughout the learning rather than just at the end of instruction. See Table 4 for full descriptive

results. The concerns preservice teachers expressed about confidence in their own feedback practices are very similar to the beliefs they held about practicing teachers.

Table 4.

Complete Descriptive Results for Pre-Post Preservice Teacher Feedback Beliefs about their Personal Confidence in Giving Student Feedback

Survey Item	Extremely Insecure Pre <i>Post</i>	Insecure Pre <i>Post</i>	Confident Pre <i>Post</i>	Extremely Confident Pre <i>Post</i>
possessing the skills needed to provide effective feedback to your students.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	18.8% (<i>n</i> =3) 23.1% (<i>n</i>=3)	68.8% (<i>n</i> =11) 61.5% (<i>n</i>=8)	12.5% (<i>n</i> =2) 15.4% (<i>n</i>=2)
communicating feedback in a student-friendly way.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	18.8% (<i>n</i> =3) 15.4% (<i>n</i>=2)	56.3% (<i>n</i> =9) 53.8% (<i>n</i>=7)	25.0% (<i>n</i> =4) 30.8% (<i>n</i>=4)
providing quality feedback to your students.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	25.0% (<i>n</i> =4) 23.1% (<i>n</i>=3)	75.0% (<i>n</i> =12) 76.9% (<i>n</i>=10)	0% (<i>n</i> =0) 0% (<i>n</i>=0)
including both positive and corrective feedback.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	25.0% (<i>n</i> =4) 30.8% (<i>n</i>=4)	50.0% (<i>n</i> =8) 38.5% (<i>n</i>=5)	25.0% (<i>n</i> =4) 30.8% (<i>n</i>=4)
giving students feedback that could move student learning forward.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	18.8% (<i>n</i> =3) 15.4% (<i>n</i>=2)	62.5% (<i>n</i> =10) 61.5% (<i>n</i>=8)	18.8% (<i>n</i> =3) 23.1% (<i>n</i>=3)
providing students opportunities to contribute to the feedback.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	31.3% (<i>n</i> =5) 30.8% (<i>n</i>=4)	43.8% (<i>n</i> =7) 46.2% (<i>n</i>=6)	25.0% (<i>n</i> =4) 23.1% (<i>n</i>=3)
allowing students to use/reflect on feedback to improve their learning.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	31.3% (<i>n</i> =5) 38.5% (<i>n</i>=5)	62.5% (<i>n</i> =10) 53.8% (<i>n</i>=7)	6.3% (<i>n</i> =1) 7.7% (<i>n</i>=1)
giving feedback throughout the learning rather than just at the end of instruction.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	31.3% (<i>n</i> =5) 38.5% (<i>n</i>=5)	56.3% (<i>n</i> =9) 46.2% (<i>n</i>=6)	12.5% (<i>n</i> =2) 15.4% (<i>n</i>=2)
using assessment results and student feedback to drive your instruction.	0% (<i>n</i> =0) 0% (<i>n</i>=0)	6.3% (<i>n</i> =1) 7.7% (<i>n</i>=1)	62.5% (<i>n</i> =10) 69.2% (<i>n</i>=9)	31.3% (<i>n</i> =5) 23.1% (<i>n</i>=3)

Whereas the quantitative results show no statistical change, qualitative results reveal a different story. Preservice teachers self-reported high levels of confidence in the pre-project survey. Thus, there was no room for them to grow. Between the post-project survey and end-of-course essay, all preservice teachers in the language arts methods course indicated as a result of the course, they learned how to give good feedback, felt more confident in their abilities, and were convinced of the importance of this feedback for their students. One preservice teacher stated,

From my experiences throughout the semester, I have grown to be very comfortable in giving middle level students quality feedback. In working with the students online, I have been able to gain real-life experiences that have shown me how actual kids respond to my feedback. From this, I believe that I now have a great feel for what feedback works and challenges the students to dig deeper into their work.

Middle Grades Students' Perceptions about Feedback over Time

On average, grades 7-9 students' beliefs about feedback from their teachers ($M=30.71$, $SD=2.70$) were significantly lower compared to their beliefs about feedback from their preservice teacher ($M=34.29$, $SD=3.17$) as evidenced through paired-samples t -test results; $t (44) = 6.69$, $p = .000$, two-tailed. Overall, grades 7-9 students felt positively about feedback they received from both their teachers and their preservice teacher. However, grades 7-9 students were more or equally agreeable about the feedback they had received from their preservice teacher in all areas except receiving verbal feedback. See Table 5 for full descriptive results.

Table 5.

Complete Descriptive Results for Pre-Post Middle Grades Student Beliefs about Feedback Received

Survey Item	SD	D	A	SA
	Teacher <i>Preservice Teacher</i>	Teacher <i>Preservice Teacher</i>	Teacher <i>Preservice Teacher</i>	Teacher <i>Preservice Teacher</i>
I read the feedback my teacher/preservice teacher gives to me.	0% (<i>n</i> =0)	1.3% (<i>n</i> =1)	(<i>n</i> =55)	29.1% (<i>n</i> =23)
	0% (<i>n</i>=0)	0% (<i>n</i>=0)	26.7% (<i>n</i>=12)	73.3% (<i>n</i>=33)
I take the feedback I am given by my teacher/preservice teacher seriously.	0% (<i>n</i> =0)	5.1% (<i>n</i> =4)	(<i>n</i> =53)	27.8% (<i>n</i> =22)
	0% (<i>n</i>=0)	0% (<i>n</i>=0)	24.4% (<i>n</i>=11)	75.6% (<i>n</i>=34)
I usually use the feedback I have been given by my teacher/preservice teacher to improve my future work.	0% (<i>n</i> =0)	6.3% (<i>n</i> =5)	(<i>n</i> =46)	35.4% (<i>n</i> =28)
	0% (<i>n</i>=0)	0% (<i>n</i>=0)	42.2% (<i>n</i>=19)	57.8% (<i>n</i>=26)
My teacher/preservice teacher gives me feedback during lessons (before I get a final grade).	1.3% (<i>n</i> =1)	28.2% (<i>n</i> =22)	44.9% (<i>n</i> =35)	25.6% (<i>n</i> =20)
	0% (<i>n</i>=0)	2.2% (<i>n</i>=1)	31.1%	66.7%

			(n=14)	(n=30)
My teacher/preservice teacher gives me feedback when I get an assignment returned (with a final grade).	1.3% (n=1) 6.7% (n=3)	14.1% 13.3% (n=6)	53.8% 37.8% (n=17)	30.8% 42.2% (n=19)
Feedback I receive from my teacher/preservice teacher is usually given quickly.	5.1% (n=4) 0% (n=0)	26.9% 6.7% (n=3)	57.7% 42.2% (n=19)	10.3% 51.1% (n=23)
I receive feedback from my teacher/preservice teacher that is written on my assignments often.	2.5% (n=2) 2.2% (n=1)	21.5% 24.4% (n=11)	53.2% 37.8% (n=17)	22.8% 35.6% (n=16)
I receive verbal feedback from my teacher/preservice teacher often.	3.8% (n=3) 20.0% (n=9)	30.4% 35.6% (n=16)	51.9% 28.9% (n=13)	13.9% 15.6% (n=7)
My teacher/preservice teacher gives me feedback that is positive and explains my strengths.	1.3% (n=1) 0% (n=0)	16.5% 0% (n=0)	54.4% 20.0% (n=9)	27.8% 80.0% (n=36)
My teacher/preservice teacher give me feedback that is constructive and helps me understand what I did wrong.	1.3% (n=1) 0% (n=0)	7.6% (n=6) 0% (n=0)	53.2% 28.9% (n=13)	38.0% 71.1% (n=32)

Qualitative findings support the quantitative results in that, overall, middle grades students in grades 7-9 indicated they received better feedback from preservice teachers than teachers already in the profession. The interactive experience alone had 90.6% of its students feeling positive about receiving feedback from preservice teachers (compared to 74.35% re: receiving feedback from in-service teachers), 4% of its students feeling negative (compared to 7.6% re: receiving feedback from in-service teachers), and 5.3% of its students feeling either indifferent or seemingly unable to reach a conclusion (compared to 17.8% re: receiving feedback from in-service teachers). Based on coded results from the survey, two main themes developed as to why the middle grades students felt as though they received better feedback from preservice teachers: general feelings and praise and meaningfulness of feedback.

General feelings and praise. Whereas overall more positive responses about receiving feedback were elicited from middle grades students about their preservice teachers in comparison to their in-service teachers, general feelings and praise was an area middle grades students felt very positively about with both types of teachers. There were 38 separate references to feelings and praise (mostly positive, specifically referencing growth in confidence) related to preservice teachers. Students felt as though their preservice teacher partner made them “want to do [the project] GREAT” or “do better for next time,” and that their partner was “just as involved as [they were].” In comparison, 50 students referred to feeling positive, cared about, and more confident when their in-service teachers provided feedback. In general, students reported feeling

good about the feedback they received from both types of teachers; however, they are not as expressive about this in their written survey responses.

Meaningfulness of feedback. Providing meaningful feedback was a common theme found in middle grade students' open-ended responses. Most of those surveyed indicated feedback they received from their preservice teachers was meaningful ($n = 42$), whereas less said the same about their in-service teachers ($n=16$). One specific way students said feedback was meaningful was through clarity of communication. Middle grades students said it was most beneficial when preservice teachers provided meaningful feedback by offering clear examples of what students are "doing right or wrong" and telling them exactly what they need to do. There were 20 references to "positive yet constructive" feedback from preservice teachers to their middle school partners, with a focus on "what [they] did right and what [they] need to fix." In contrast, almost 77% of respondents referring to in-service teacher feedback behaviors asked for better explanations, with more and clearer examples, constructive criticism, and explicit detail.

Implications

With the national shift in preservice teacher readiness assessment moving from traditional paper-pencil tests to more performance-based measures (i.e., edTPA), preservice teacher education instruction must in turn be modified to meet these new and more rigorous demands. Whereas prior research and literature explicitly tell us that giving PK-12 students high-quality feedback is critical for student growth in learning (e.g., Fisher & Frey, 2013; Hattie & Timperley, 2007; Sadler, 1989), feedback has also become (or is in the process of becoming) a critical component of teacher licensure exams. This shift is evidenced by the fact that many states now require their teacher candidates to participate in the edTPA (SCALE, 2014). However, teachers are not necessarily well prepared with assessment skills such as giving formative feedback from their preservice education (Mertler & Campbell, 2005; Sondergeld, 2014). Additionally, preservice teachers may not even realize they lack competence in providing feedback to their students until faced with high-stakes assessments of their teaching performance, or their lack of proficiency is directly brought to their attention.

Our case study has clearly demonstrated this situation and offered a scaffolded, guided-instruction approach that worked to foster effectively improved preservice teacher ability in (as well as confidence and beliefs about) giving high-quality student feedback to elicit middle grade students' improved perceptions of learning. We acknowledge that the generalizability of our findings are indeed limited due to the small sample of preservice teachers and middle grades students lacking culturally diversity. However, we believe that there are findings-based implications that transcend geographic region and background in terms of preservice teacher learning, middle grades student learning, and the study of preservice teacher education.

Preservice Teacher Learning Implications

If we want our preservice teachers to be successful in providing their students with high-quality feedback that can then be used to move learning forward, we must 1) help our preservice teachers realize this is a skill they still need to develop, 2) offer them guided-instruction that models best practices in giving high-quality feedback, and 3) allow them time to practice these skills in low-stakes simulated environments as well as real-world contexts.

It has been said that teachers often teach the way they were taught (Cruickshank, Metcalf, Bainer Jenkins, 2009). There are, of course, other factors that influence the way someone teaches (e.g., experiences in teacher education programs), yet if there are not alternate ways of teaching presented or motivation to teach differently, teachers often rely back on what they have seen in the past. With this logic in mind, we believe that most teachers assess the way they were assessed. Because many preservice teacher education programs do not offer undergraduate courses in assessment (Mertler & Campbell, 2005), preservice teachers are left to assess in ways their experiences have shown them is acceptable. Regardless of whether the assessment practices of their past were high or poor quality, preservice teachers may perceive their assessment practices to be appropriate because they are doing what was modeled to them. If what our preservice teachers experienced in terms of assessment practices through their own education were high quality, then this is not a poor outcome. However, our data suggest that this is likely not the case. Our preservice teachers demonstrated low levels of ability in terms of providing usable feedback to students before having explicit, guided training in doing so. Yet, our data also indicate they were confident that their feedback practices were of high quality.

A disconnect between higher self-confidence and lower ability level is not unusual with today's generation of undergraduate students (Twenge, 2013). Helping preservice teachers recognize when a disconnect between self-confidence and ability exists can, however, lead to a powerful opportunity for correction if we can get them motivated and buy-in to the change (Fullan, 2006). To facilitate the change in assessment practices that we were looking for, scaffolded guided-instruction proved to be an effective method. Rather than simply lecturing to students about best practices in providing formative feedback, students were shown best practices in providing formative feedback and then presented with multiple opportunities to practice providing feedback in simulated situations with their instructor providing guidance along the way. This method allowed preservice teachers a safe environment to learn and grow from their own areas of weakness—which has been identified as an effective method of scaffolded instruction (North Central Regional Educational Laboratory, n.d.).

Finally, preservice teachers applied their new feedback practices learned in the safe environment to real-life situations with middle grades students. Whereas preservice teachers were applying what they had learned with real students, they were not on their own. Preservice teachers had continued support and guidance from their university instructor during this field experience—which is a critical feature required for change to take place effectively (Fullan, 2012). Qualitative data show that all preservice teachers in this study recognized this real-world experience as a powerful method for them to learn, and preservice teachers felt they had grown in their abilities and confidence to provide their students with high-quality feedback.

Middle Grades Student Learning Implications

If our goal is to help preservice teachers develop into effective educators, then we must examine how our preservice teachers are impacting the students they are teaching. Too often preservice teacher research stops at drawing inferences about what the preservice teachers learned from our work with them. To know truly if our preservice teacher education programs are making a difference, it is critical to investigate the impact on PK-12 student learning. Although our study was not designed to elicit findings about student learning directly, we are able to examine middle-grades students' perceptions about the feedback their preservice teacher provided them with, as well as their perceptions about their own learning from the experience.

Our quantitative and qualitative findings related to middle grades students' perceptions of the feedback they were given from their preservice teacher partner supports current literature. When middle grades students felt the feedback they received was specific, constructive, and timely, they perceived the feedback was valuable and of high quality and helped improve their learning (Brookhart, 2008; Hattie & Timperley, 2007). This finding suggests that the influence of the scaffolded guided-instruction at the university was effective beyond preservice teacher training; it also met the ultimate goal of positively impacting our end clients—the middle grades students.

Implications for Studying Preservice Teacher Education

Preservice teacher education is complex with a multitude of factors (many of which teacher education programs do not have control over) playing important and sometimes opposing roles. In order to understand best the most complete picture about preservice teacher education, we need to ask questions of both "what is happening" along with "why is this happening." Our study illustrates the need for mixed-methods research with regard to our assessment of preservice teacher confidence. Quantitative measures alone suggested that there was no change in preservice teacher confidence in providing students with quality feedback, which was because their reported confidence levels were high at both pre- and post-survey. However, qualitative findings helped us to discover that preservice teachers in this study realized as they went through the language arts methods course that they were not as confident as they thought in the beginning and that they learned a great deal from the scaffolded guided-instruction and as a result believed their confidence in delivering high-quality feedback increased. By using both quantitative and qualitative methods, we were able to have a more holistic understanding of this specific component of our study. In other instances, quantitative and qualitative data supported each other, allowing us to feel greater confidence in our interpretation of the results.

Implications for Professors in Higher Education

Scaffolding should be one of the first instructional techniques used with students in a classroom at any grade level. It is breaking up the learning into manageable chunks and then providing a tool, or support, with each chunk. Think of it as of using training wheels – they are temporary and will be removed when students are ready and guidance is no longer needed. Scaffolding increases the likelihood students will meet the course objectives and it can provide a welcoming and caring learning environment.

Include Visuals

To get started with scaffolding, an instructor may first think about incorporating a visual aid. Many individuals would say that they are visual learners, meaning they learn best when able to see something rather than by hearing about it alone. Images, graphic organizers and charts have a profound place in our lives and help students make meaning of new content. Visuals help students store emotions and thoughts, invigorate our senses, and help students understand complex concepts. Images help us code perceptions in our brains—these very perceptions that are vital to understanding. Images help us remember the meaning of words, associate them appropriately, and remember what we have read, seen, and heard (Falter Thomas & Lenox, 2015). Pictures, graphic organizers, etc. allow us to comprehend better and can all serve as

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scaffolding tools. They help students visualize and better grasp concepts. Visual scaffolds also include an instructor pointing, to call attention to an object, and gesturing to illustrate. Visuals help guide and shape student thinking so that it can be applied. Some students, of course, can get right into the task at hand without visual assistance, but many benefit from having a visual aid, especially with challenging reading or new information.

Modeling

Have you ever had a student say, “Just show me!” while you were explaining or lecturing? Modeling is a foundation in scaffolding. In classes, instructors can demonstrate, or model, exactly what is expected of students. For example, this could mean showing students the outcome or the product before they actually begin the task. If an instructor has an assignment, a model should be presented with the grading criteria or a rubric. This way students can be guided and know of expectations throughout the entire process. Additionally, students see and hear from instructors about why specific elements represent high-quality work. A model provides a concrete example of the goals students are expected to achieve or produce.

Think Aloud

A “think aloud” is just that. It is when an instructor talks about the thinking that is going on in their own head. Think alouds are a scaffolding strategy which have been described as eavesdropping on someone’s thinking; however, in the classroom they are purposeful and used to help students learn how to monitor their thinking as they read, listen and work. To include a think aloud, an instructor pauses and talks about what he or she is thinking at that moment, or he or she explains their thought process. Opportunities for students to hear developed, critical thinking are essential. An instructor can also ask questions of him/herself such as: “What new information did I learn?” and “How does this fit in with what I already know?” and then proceed to answer his or her own questions out loud.

Activate & Connect Prior Knowledge

For many students new content can be overwhelming. Instructors can scaffold new information and therefore help students transition from the unfamiliar to the familiar by tapping into what students already know about the content or topic. What the students already know is their background, or prior, knowledge. Typically, prior knowledge is the entry point for teaching and learning because it builds on what is already known and therefore it gives some meaning or sense for the new learning. It is like opening a filing cabinet. You first pull out the draw, and there are already folders there for you to add new papers. This new, additional information makes the folders expand and grow. To get learners involved from the start, instructors can ask students to think, write, reflect and discuss what they already know about the new topic or content. When students share their own experiences and ideas, and when they connect this to their own lives, they can better grasp the new learning about to take place.

Guided Practice

From our own life experiences, we probably all know that in order to get better at something we must practice. An old saying is “practice makes perfect”. Instructors must not only provide opportunities for students to practice, but to practice correctly. As some have pointed out, “perfect practices makes perfect”. An instructor monitoring students as they work helps create correct practice. To achieve particularly difficult concepts, an instructor can scaffold student learning by breaking up the lesson into a series of little lessons that progressively move students toward stronger understanding. Between each lesson, the instructor checks to see if students have understood the concept and gives them time to practice and explain how that basic step builds up to the more difficult ones. It is important that instructors ask questions of their students, during or after this practice, to check for understanding so that students are practicing correctly. Through guided practice teachers gradually release more and more responsibility to the students and offer less assistance because students have learned and are capable of working on their own.

Provide Talk Time

Students need to process new ideas and information and many need time to talk it out with others to do this. Allowing students time to talk and make sense of new information, and to articulate their learning and understandings with others, who are involved in the same experience, is important. Instructors can do this by pausing and asking their students to “turn and talk” about the information that was just shared with someone sitting close to them. Language is a powerful learning tool. It can be used to scaffold interactions to formulate students’ sharing their thinking with other students. With a “turn and talk” students are offered the opportunity to share their thinking in a low-risk setting. Verbalizing their thinking scaffolds students understanding and provides talk at a peer level.

Conclusions

Comparable to scaffolding used to help construction workers with a specific building task, instructional scaffolds used in the classroom are short-term structures put in place to assist students as they build or learn new concepts. Once students are able to achieve the task, the scaffolding is taken away. Scaffolding strategies address the multiple ways students learn and this increases the likelihood that students will understand the concepts being taught.

In the classroom it includes incorporating dialogue and feedback. It is a shared responsibility between instructor and student used to promote learning. Through supportive and challenging learning experiences instructors work as a “guide on the side” helping students become lifelong, independent learners. When instructors incorporate scaffolding, they become a facilitator of knowledge and not a dominate expert. This teaching style of facilitation supports students to take a more active role in their own learning.

Assessment is now at the forefront of preservice teacher education. We cannot assume that preservice teachers will develop skills in best assessment practices without deliberate, scaffolded, and guided instruction. Additionally, time to practice these skills is needed in both low-stakes simulated learning environments as well as within real-world contexts with students. To deliver a preservice teacher education course that fosters “learning” how to provide students with high-quality feedback rather than simply “teaching” how to do this takes intentional planning and instructional modeling of best assessment practices, as well as a field experience

component to be most effective. Although we acknowledge that researchers have previously speculated that providing preservice teachers with real-world experience in giving feedback to middle school students improves both preservice teachers' confidence and feedback abilities, this study set out to test this premise, and the data is demonstrable. We recommend that university courses provide real-world contexts for preservice teachers in order to apply and improve the skills and knowledge that they gained in the university setting so as to develop the most effective assessment practices in their teaching careers.

Appendices

Appendix 1. Preservice Teacher Feedback Survey

Section A. Beliefs about Other Teachers' Feedback Practices

In general, teachers I have encountered

1. have the skills needed to provide effective feedback to their students.
2. communicate feedback in a student-friendly way.
3. provide quality feedback to their students.
4. include both positive and corrective feedback.
5. give students feedback that could move student learning forward.
6. provide students opportunities to contribute to the feedback.
7. allow students to use/reflect on feedback to improve their learning.
8. give feedback throughout the learning rather than just at the end of instruction.
9. use assessment results and student feedback to drive their instruction.

Rating scale for these items: Strongly Disagree, Disagree, Agree, Strongly Agree

Section B. Confidence in Personal Feedback Skills

Indicate your level of confidence for:

1. possessing the skills needed to provide effective feedback to your students.
2. communicating feedback in a student-friendly way.
3. providing quality feedback to your students.
4. including both positive and corrective feedback.
5. giving students feedback that could move student learning forward.
6. providing students opportunities to contribute to the feedback.
7. allowing students to use/reflect on feedback to improve their learning.
8. giving feedback throughout the learning rather than just at the end of instruction.
9. using assessment results and student feedback to drive your instruction.

Rating scale for these items: Extremely Insecure, Insecure, Confident, Extremely Confident

Section C. Open-ended Questions about Feedback

1. What do you believe is the purpose of giving students feedback?

2. How comfortable do you feel giving quality feedback to middle level students? Explain.
3. What types of training have you had in giving feedback?
4. Regarding feedback, what do you want to learn more about?
5. What types of feedback do you find most helpful to receive from your professors/instructors?
6. When you get feedback from your professors/instructors do you generally read it? Explain why or why not.
7. If you typically read the feedback given to you, how do you use the feedback?
8. How does receiving feedback on your assignments typically make you feel?
9. Do you believe the feedback you receive has an impact on your skills and abilities? Explain.
10. How could how teachers/professors/instructors could improve the feedback they give to their students?

Appendix 2. Feedback Survey for Students

Section A. Feedback Survey

I read the feedback my teachers give to me.

I take the feedback I am given by my teachers seriously.

I usually use the feedback I have been given by my teachers to improve my future work.

My teachers give me feedback during lessons (before I get a final grade).

My teachers give me feedback when I get an assignment returned (with a final grade).

Feedback I receive from my teachers is usually given quickly.

I receive feedback from my teachers that is written on my assignments often.

I receive verbal feedback (my teachers speaking to me) often.

My teachers give me feedback that is positive and explains my strengths.

My teachers give me feedback that is constructive and helps me understand what I did wrong.

Rating scale for these items: Strongly Disagree, Disagree, Agree, Strongly Agree

Section B. Open-ended Questions about Feedback

How does receiving feedback from your teachers usually make you feel?

What could teachers do to make their feedback more meaningful to you?

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